

a train track layout coupled to the track interface unit;

wherein the track interface unit converts the commands into a modulated signal

and outputs the modulated signal to the train track layout, wherein the modulated signal is a spread spectrum signal.

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44. A model train system comprising:

a remote control unit for outputting commands;

a track interface unit that receives the commands; and

a train track layout coupled to said track interface unit; whereby (1) the track

interface unit processes said commands and outputs the commands to the train track layout, said track interface unit being configured to receive and process data corresponding to at least one of operating and diagnostic information of a model train located on said train track layout.

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56. The model train system of claim 110, whereby said acknowledge signal is displayed on said remote control unit.

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70. A model train system comprising:

a train track layout;

a track interface unit coupled to said train track layout; and

a model train operating on said train track layout, the model train including a circuit configured to provide at least one of diagnostic and operating information to said track interface unit through said train track layout.

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<sup>27</sup>  
71. The model train system of claim <sup>26</sup>70, further comprising an information appliance coupled to said track interface unit, wherein said track interface unit provides said at least one of diagnostic and operating information to said information appliance.

<sup>28</sup>  
72. The model train system of claim <sup>27</sup>71, wherein said information appliance is configured to upload said at least one of said diagnostic and operating information to an Internet.

<sup>29</sup>  
73. The model train system of claims <sup>27</sup>71 or <sup>28</sup>72, wherein said information appliance is a computer.

<sup>30</sup>  
74. The model train system of claim <sup>27</sup>71, wherein said information appliance is configured to download information from an Internet and said downloaded information is provided to said model train through said track interface unit and said train track layout.

**SEE APPENDIX FOR CHANGES MADE TO THE CLAIMS**

Please add the following new claims:

<sup>34</sup>  
--92. A model train system comprising:

a data unit for outputting data; and

a track interface unit for receiving the data, wherein the track interface unit is configured to convert the data into a modulated signal, inject the modulated signal into a

power signal so as to form an integrally formed command/power signal, and output the integrally formed command/power signal to a train track layout.

<sup>35</sup> 93. The model train system of claim <sup>34</sup>92, wherein said data unit is an external sound source for providing sounds, said track interface unit being coupled to said external sound source for receiving said sounds and is configured to convert the sounds into said modulated signal.

<sup>36</sup> 94. The model train system of claim <sup>35</sup>93, further comprising a train track layout and a model train on the train track layout capable of receiving the integrally formed command/power signal from the train track layout and processing the integrally formed command/power signal in order to retrieve the sounds and play them through a speaker located on the model train.

<sup>37</sup> 95. The model train system of claim <sup>35</sup>93 or <sup>36</sup>94, wherein the external sound source is any one of a CD player, cassette tape player, MP3 player, DVD player, mini-disc player, or memory stick.

<sup>38</sup> 96. The model train system of claim <sup>35</sup>93 or <sup>36</sup>94, wherein the external sound source is a computer.

<sup>39</sup> 97. The model train system of claim <sup>38</sup>96, wherein the sounds are downloaded from an Internet.

<sup>40</sup>  
~~98.~~ The model train system of claim ~~93~~<sup>35</sup>, wherein the modulated signal has a wide bandwidth.

<sup>41</sup>  
~~99.~~ The model train system of claim ~~92~~<sup>34 35 36</sup>, ~~93~~ or ~~94~~, wherein the modulated signal is a spread spectrum signal.

<sup>42</sup>  
~~100.~~ The model train system of claim ~~92~~<sup>35</sup> or ~~94~~<sup>36</sup>, wherein the external sound source is a microphone.

<sup>43</sup>  
~~101.~~ The model train system of claim ~~93~~<sup>35</sup> or ~~94~~<sup>36</sup>, wherein the modulated signal is an FM signal.

<sup>44</sup>  
~~102.~~ The model train system of claim ~~101~~<sup>43</sup>, wherein the external sound source is any one of a CD player, cassette tape player, MP3 player, DVD player, mini-disc player, or memory stick.

<sup>45</sup>  
~~103.~~ The model train system of claim ~~101~~<sup>43</sup>, wherein the external sound source is a computer.

<sup>46</sup>  
~~104.~~ The model train system of claim ~~103~~<sup>45</sup>, wherein the sounds are downloaded from an Internet.

<sup>47</sup>  
~~105~~. The model train system of claim ~~92~~<sup>74</sup>, wherein said data unit includes a remote control, said model train system further comprising an accessory interface unit coupled to the track interface unit and to one or more accessories located on or around a train track layout, wherein the remote control includes a memory for storing the identity of one or more of said accessories such that a command entered on the remote control controls said one or more accessories.

<sup>48</sup>  
~~106~~. The model train system of claim ~~105~~<sup>47</sup>, wherein the command is received by the track interface unit, which communicates said command to the accessory interface unit for controlling said one or more accessories.

<sup>49</sup>  
~~107~~. The model train system of claim ~~92~~<sup>74</sup>, wherein said data includes a Doppler effect command, said model train system further comprising a train track layout coupled to said track interface unit and a model train on said train track layout capable of playing train sounds, said track interface unit being configured to receive said Doppler effect command and convert it to the modulated signal which is outputted to said train track layout, said model train picking up said modulated signal from said train track layout and retrieving the Doppler effect command from said modulated signal, such that the model train plays one or more train sounds that simulate the Doppler effect.

<sup>50</sup>  
~~108~~. The model train system of claim ~~107~~<sup>49</sup>, wherein the Doppler effect simulation is based on a fixed distance traveled by the model train around said train track layout.

<sup>51</sup>  
~~109~~. The model train sound system of claim ~~108~~<sup>50</sup>, wherein said fixed distance is set by entering (1) a start Doppler loop command and (2) a stop Doppler loop command on said remote control unit, whereby the distance traveled by the model train on the train track layout during the interval between said start Doppler loop command and said stop Doppler loop command is the fixed distance.

<sup>7</sup> ~~110~~. The model train system of claim ~~44~~<sup>6</sup>, wherein the track interface unit provides an acknowledge signal to the remote control unit which indicates that the track interface unit successfully received and processed said command.

<sup>52</sup>  
~~111~~. The model train system of claim ~~94~~<sup>36</sup>, wherein the model train includes a memory for storing the sounds.

<sup>53</sup>  
~~112~~. The model train system of claim ~~93~~<sup>35</sup>, wherein said track interface unit includes a memory for storing the sounds.

<sup>54</sup>  
~~113~~. The model train system of claim ~~92~~<sup>34</sup>, wherein said data unit is an external sound source for providing sounds and said data includes an analog signal, said track interface unit being coupled to said external sound source for receiving said analog signal and is configured to convert the analog signal into a digital signal so as to form at least part of the modulated signal,

said model train system further comprising a train track layout and a model train on the train track layout capable of receiving the integrally formed command/power

signal from the train track layout and processing the integrally formed command/power signal in order to retrieve the sounds and play them through a speaker located on the model train, said model train being configured to convert the digital signal back to an analog signal.

<sup>55</sup> 114. The model train system of claim <sup>24</sup> 92, wherein said external sound source includes an audio output, said audio output being one of line level audio and headphone.

<sup>8</sup> 115. The model train system of claim <sup>6</sup> 44, said track interface unit being configured to communicate said at least one of operating and diagnostic information to a user.

<sup>56</sup> 116. The model train system of claim <sup>49</sup> 107, wherein the Doppler effect simulation is based on the speed at which the model train moves around the train track layout.--

**I. CLAIMS 72 AND 74 ARE DEFINITE**

Claims 72 and 74 stand rejected under 35 U.S.C. § 112, second paragraph. It is submitted that claims 72 and 74, as amended, are definite. Accordingly, it is respectfully requested that the rejection of claims 72 and 74 under 35 U.S.C. § 112, second paragraph, be withdrawn.

**II. CLAIMS 1-3 ARE NOT ANTICIPATED BY YOUNG ET AL.**

Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Young et al. ('856). This rejection is respectfully traversed for the following reasons. Claim 1

has been amended to clarify the distinction between the present invention and Young et al., whereas claim 3 has been rewritten into independent form based on claim 1 as originally filed.

**A. CLAIM 1**

Claim 1 recites in pertinent part, "wherein the track interface unit converts the commands into a modulated signal, *injects the modulated signal into a power signal* so as to form an *integrally formed command/power signal*, and outputs the integrally formed command/power signal to the train track layout" (emphasis added). Accordingly, the present invention is capable of allowing the model trains to pick up both the power signal and command signal at one location on the model train (e.g., receiver circuit 201 through rollers sliding on the track). Support for this feature can be found, for example, on page 16, lines 7-8 and page 44, lines 8-10 of Applicants' specification. In contrast, as shown in Figure 15 of Young et al., the base unit 110 outputs a *separated* FSK signal and power signal, whereby the FSK signal is received by the decoder 116 of the train circuitry and the power signal is received by the controller 128.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), and because Young et al. does not disclose or suggest, *inter alia*, "an integrally formed command/power signal" as recited in claim 1, it is submitted that Young et al. does not anticipate claim 1, nor claim 2 dependent thereon.



Based on the foregoing, it is submitted that claims 1 and 2 are patentable over Young et al.. Accordingly, it is respectfully requested that the rejection of claims 1 and 2 under 35 U.S.C. § 102(b) over Young et al., be withdrawn.

**B. CLAIM 3**

The Examiner has read broadly the FSK signal taught by Young et al. as the recited "spread spectrum signal" recited in claim 3. However, it is submitted that FSK signals are NOT equivalent to spread spectrum signals. FSK signals operate by switching between two discrete/fixed frequencies in a slow manner, whereas spread spectrum signals embody a range of multiple frequencies (i.e., no need for switching) so as to eliminate the effects of noise/interference while carrying large amounts of data in an expeditious manner (which allows, e.g., real time sound to be played on the track). As an analogy, equating spread spectrum to FSK signals is improper in the same way it is improper to equate AM signals with FM signals. As would be recognized by one of ordinary skill in the art, FSK signals are structurally and functionally different than a spread spectrum signal. The Examiner is directed to page 18, lines 15+ of Applicants' specification for a detailed discussion of spread spectrum signals and its advantages over conventional signaling (i.e., FSK).

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), and because Young et al. does not disclose or suggest, *inter alia*, a "spread spectrum signal" as recited in claim 3, it is submitted that Young et al. does not anticipate claim 3.



Based on the foregoing, it is submitted that claim 3 is patentable over Young et al.. Accordingly, it is respectfully requested that the rejection of claim 3 under 35 U.S.C. § 102(b) over Young et al., be withdrawn.

### III. CLAIMS 70-75 ARE NOT ANTICIPATED BY WIGMORE'S ARTICLE

Claims 70-75 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Wigmore's article. This rejection is respectfully traversed for the following reasons.

The Examiner rejects these claims on the allegation that the pertinent limitations "are at most related to method steps of operation or the intended uses" and thereby rejects the claims on the assertion that the device disclosed by Wigmore's article is capable of performing the functions. In order to expedite prosecution, claim 70 has been amended to recite a "model train *including a circuit configured* to provide ... " so as to define a *structural element* which is specifically configured to perform the recited functions. Some of the advantages of such a construction are summarized on page 37, line 10+ of Applicants' specification.

Turning to the device shown in Figure 1 of Wigmore's article, it is submitted that the computer illustrated is merely configured to *output* commands to the trains (i.e., not receive information from the trains), and furthermore, Wigmore's article does not disclose or suggest the train having "a circuit configured to provide ... " as now recited in claim 70.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed in a single prior art reference, Akzo N.V. v. U.S. Int'l Trade Commission, 808 F.2d 1471 (Fed. Cir. 1986), and because Wigmore's article does not

disclose or suggest, *inter alia*, a "model train including a circuit configured to provide at least one of diagnostic and operating information" as recited in claim 70, it is submitted that Wigmore's article does not anticipate claim 70, nor claims 71-75 dependent thereon.

Based on the foregoing, it is submitted that claims 70-75 are patentable over Wigmore's article.. Accordingly, it is respectfully requested that the rejection of claims 70-75 under 35 U.S.C. § 102(b) over Wigmore's article., be withdrawn.

#### **IV. CLAIMS 1-3 AND 90-91 ARE NOT ANTICIPATED BY WESTLAKE**

Claims 1-3 and 90-91 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Westlake ('606). This rejection is respectfully traversed for the following reasons.

##### **A. CLAIMS 1-3**

The Examiner's reliance on commonly owned Westlake is not entirely understood. In particular, Westlake is directed to a transformer (Z4000 owned by the present assignee; *see* Figure 1) for controlling power to the track, whereby the remote control 12 inputs the desired power settings. However, Westlake does not disclose or suggest a remote which outputs commands that are converted into a modulated signal (e.g., digital user commands). Nevertheless, for at least the same reasons discussed above in section (II)A, B of this response, it is submitted that Westlake does not anticipate claim 1 (i.e., Westlake does not disclose a modulated signal injected into a power signal) nor claim 3 (i.e., Westlake does not disclose spread spectrum signals). Westlake is directed to a power supply which outputs only various power signals, and is completely silent as to modulated signals for user commands, let alone an integrally formed command/power signal.

Based on the foregoing, it is submitted that claims 1-3 are patentable over Westlake. Accordingly, it is respectfully requested that the rejection of claims 1-3 under 35 U.S.C. § 102(e) over Westlake, be withdrawn.

**B. CLAIMS 90-91**

With respect to claims 90-91, the Examiner alleges that Westlake discloses "data processors including memory devices are provided for storing sets of commands." However, as previously mentioned, Westlake is directed to power control of a transformer and is completely silent as to storing inputted user commands. The alleged remote control 12 simply functions as a throttle for increasing or decreasing the track voltage in response to manual manipulation. Any memory circuits provided in the transformer simply store software code ("instruction set" as recited in Westlake's claims) which is preprogrammed therein for operating the transformer in response to user commands via remote control 12. That is, the memory circuits do NOT "save a series of commands *entered on the remote control*" as recited in claim 90, but rather, the memory circuit stores software code entered during manufacturing (*see, e.g.*, col. 6, lines 66-67, which discloses that the instructions are stored in a read-only memory ROM 240).

Based on the foregoing, it is submitted that claim 90-91 are patentable over Westlake. Accordingly, it is respectfully requested that the rejection of claims 90-91 under 35 U.S.C. § 102(e) over Westlake, be withdrawn.

**V. CLAIMS 30-31 ARE PATENTABLE OVER YOUNG ET AL. IN VIEW OF  
PIERSON**

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Claims 30-31 stand rejected under 35 U.S.C. § 103 as being unpatentable over Young et al. in view of Pierson ('934). This rejection is respectfully traversed for the following reasons.

**A. Proposed combination does not disclose each and every limitation**

It is submitted that even assuming *arguendo* proper, the proposed combination does not disclose or suggest, *inter alia*,

a speed control circuit ... wherein a speed command entered on the remote control unit is communicated to the track interface unit, which passes the command to the model train via rails on the train track layout, the processor in the model train receiving the command and in turn commanding the speed control circuit to drive the model train to a speed indicated in the speed command, the processor further ... (2) controlling the smoke unit to produce smoke corresponding to the model train speed.

The Examiner does not identify which element of the combination is intended to read on the speed control circuit. Furthermore, neither Young et al. nor Pierson, alone or in combination, disclose a smoke unit that is controlled to "produce smoke *corresponding to the model train speed*" as recited in claim 30.

The Examiner is directed to MPEP § 2143.03 under the section entitled "All Claim Limitations Must Be Taught or Suggested", which sets forth the applicable standard:

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (citing *In re Royka*, 180 USPQ 580 (CCPA 1974)).

In the instant case, the pending rejection does not "establish *prima facie* obviousness of [the] claimed invention" as recited in claims 30-31 because the proposed combination fails the "all the claim limitations" standard required under § 103.

**B. Proposed combination is improper**

Moreover, it is submitted that the proposed combination is improper because the Examiner has not provided the requisite *objective* evidence *from the prior art* that "suggests the desirability" of the proposed combination. As is well known in patent law, a *prima facie* showing of obviousness can only be established if the prior art "suggests the desirability" of the proposed combination using *objective* evidence. The Examiner is directed to MPEP § 2143.01 under the subsection entitled "Fact that References Can Be Combined or Modified is Not Sufficient to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (*In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)).

In the instant case, even assuming *arguendo* that Young et al. can be modified by Pierson, it is submitted that the "mere fact that [Young et al. and Pierson] can be combined ... does not render the resultant combination obvious" because nowhere does the *prior art* "suggest the desirability of the combination" as set forth by the Examiner. The Examiner is further directed to MPEP § 2143.01 under the subsection entitled "Fact that the Claimed Invention is Within the Capabilities of One of Ordinary Skill in the Art is Not Sufficient by Itself to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

A statement that modifications of the prior art to meet the claimed invention would have been [obvious] because the references relied upon teach that all aspects of the claimed invention were *individually* known in the art is *not* sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. (citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)).

In the instant case, even assuming *arguendo* that Young et al. and Pierson "teach that all aspects of the claimed invention [are] individually known in the art", it is submitted that such a conclusion "is not sufficient to establish a *prima facie* case of obviousness" because there is no *objective* reason on the record to combine the teachings of the cited prior art.

In contrast, Young et al. and Pierson are completely silent as to, for example, suggesting the *combination* of a speed control circuit with a smoke unit that is controlled to correspond to the speed. In fact, Pierson is not even directed to the particular control schemes used to operate the circuit boards therein, but rather, Pierson is directed to a hardware "kit" construction whereby different PCB's can be attached to a given mother board. Accordingly, any motivation derived from Pierson would be directed to hardware configurations, not circuit-based control of speed, smoke and the relationship therebetween etc..

In summary, there is no objective evidence on the record that the prior art "suggests the desirability" of such a combination as recited in the pending claims. At best, the Examiner has attempted to show only that the elements of the claimed invention are *individually* known without providing a *prima facie* showing of obviousness that the *combination* of elements recited in the claims is known or suggested in the art. For all the foregoing reasons, it is submitted that the proposed combination of Young et al. and Pierson et al. is improper.

Based on the foregoing, it is submitted that claim 30-31 are patentable over Young et al. in view of Pierson. Accordingly, it is respectfully requested that the rejection of claims 30-31 under 35 U.S.C. § 103 over Young et al. in view of Pierson, be withdrawn.

**VI. CLAIMS 44-61 ARE PATENTABLE OVER WESTLAKE OR YOUNG ET AL.**

Claims 44-61 stand rejected under 35 U.S.C. § 103 as being unpatentable over Westlake or Young et al.. This rejection is respectfully traversed for the following reasons.

**A. Westlake**

It is submitted that Westlake is NOT prior art to the present application under the revised § 103(c). That is, the present application and Westlake were commonly owned at the time the claimed invention was made by Mike's Train House (*see* assignment records), Westlake only qualifies as prior art under §102(e), and the instant application was filed after November 29, 1999 (*see* August, 2001 edition of MPEP § 706.02(1)(1)).

**B. Young et al.**

The Examiner admits that Young does not disclose feedback signals to operators as acknowledgements for train conditions and status of operator commands. The Examiner attempts to overcome this deficiency of Young et al. by alleging that "such feedback information feature between remote control systems and the associated computerized controlled operating systems is merely a common technology" so as to conclude that modifying Young "to apply such common technology" would have been obvious. These assertions are vehemently traversed.

It is submitted that even assuming *arguendo* that the feedback technology is common technology, such a conclusion is not by itself paramount to rendering obvious the use of said technology specifically in a model train system as in the present invention. As is well known, patents can be issued based on using common technology in novel



*combinations*. Rarely do patents themselves claim novelty to a new pioneering technology.

In the instant case, it is submitted that the *combination* of using feedback technology with model train track layouts so as to provide operating/diagnostic information of the train to the user is novel and non-obviousness. One example of the benefits of such a feedback system, whereby train diagnostics, for example, are fed back to the user to inform him of any electrical/mechanical problems on the train, is the capability to enable the user to upload the diagnostics to a web-site which can then download software patches to correct the electrical/mechanical problems, etc..

As discussed above in section V(B) of this response, simply because Young et al. can be modified by incorporating allegedly common technology, such a modification is NOT obvious unless the prior art sets forth objective evidence that "suggests the desirability" of the modification. None of the cited prior art suggests a "track interface unit being configured to receive and process data corresponding to at least one of operating and diagnostic information of a model train located on said train track layout" as recited in claim 44.

Based on the foregoing, it is submitted that claims 44-61 are patentable over Westlake or Young et al.. Accordingly, it is respectfully requested that the rejection of claims 44-61 under 35 U.S.C. § 103 Westlake or Young et al., be withdrawn.

## VII. NEW CLAIMS

New claim 92 is submitted to be allowable for at least the reasons discussed above with respect to claim 1. Dependent claims 93-116 are submitted to be allowable based on their own merits, in addition to being dependent on novel independent claims.